



# United States Patent [19]

Pitzen et al.

[54] RECHARGEABLE BATTERY ADAPTED TO  
BE ATTACHED TO ORTHOPEDIC DEVICE

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[56] References Cited

## U.S. PATENT DOCUMENTS

D. 364,463	11/1995	Pitzen et al. ....	D24/146
2,261,230	11/1941	Cox et al. .	
2,460,149	1/1949	Schoensiegel .	
3,120,845	2/1964	Horner .	
3,494,799	2/1970	Pedone, Jr. .	
3,734,207	5/1973	Fishbein .	
3,943,934	3/1976	Bent .	
3,999,110	12/1976	Ramstrom et al. .	
4,050,528	9/1977	Poltz et al. .	
4,091,880	5/1978	Troutner et al. .	
4,386,609	6/1983	Mongeon .	
4,441,563	4/1984	Walton, III .	
4,447,749	5/1984	Reeb, Jr. et al. .	
4,728,876	3/1988	Mongeon et al. .	
4,736,742	4/1988	Alexson et al. .	
4,751,452	6/1988	Kilmer et al. .	
4,834,092	5/1989	Alexson et al. .	
4,835,410	5/1989	Bhagwat et al. .	
4,871,629	10/1989	Bunyea .....	429/97
4,873,461	10/1989	Brennan et al. .	
5,026,384	6/1991	Parr et al. .	
5,089,738	2/1992	Bergqvist et al. .	
5,122,427	6/1992	Flowers et al. ....	429/97
5,136,469	8/1992	Carusillo et al. .	



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5,207,697	5/1993	Carusillo et al.	606/167
5,213,913	5/1993	Anthony, III	429/97
5,235,261	8/1993	Philipp	318/504
5,244,755	9/1993	Bencist et al.	429/97
5,263,972	11/1993	Evans et al.	606/176
5,265,343	11/1993	Pascal off	30/339
5,306,285	4/1994	Müller et al.	606/177
5,360,073	11/1994	Akazawa	173/15
5,388,749	2/1995	Davignon et al.	227/67

#### FOREIGN PATENT DOCUMENTS

0 272 434 6/1988 European Pat. Off. .  
3 317 398 10/1985 Germany .

#### OTHER PUBLICATIONS

Japanese Abstract, 1484694, Portable Drills, Aug. 27, 1974 (1 page).

Product brochure entitled: "Maxion™ Cordless Powered Instrument System", by 3M HealthCare, (31 pages). (No Date).

Product brochure entitled: "The K-100 Mini-Driver System, Cleaning and Lubrication", by 3M Surgical Products Division (5 pages). (No Date).

Product brochure entitled: "Cordless 800 Wire Driver", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "Cordless 200 Reamer", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "Cordless 450 Orthopaedic Drill", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "Mini-Driver™ Air Instrument System", by 3M, 1975, (4 pages). (No Month).

(List continued on next page.)

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[57]

#### ABSTRACT

A cordless drive assembly for driving various orthopedic surgical instruments is described. The drive assembly is battery powered and includes tracks in the handle portion of its housing for receiving the battery. A latch locks the battery to the housing.

## OTHER PUBLICATIONS

Product brochure entitled: "Acculan", by Aesculap®, (4 pages). (No Date).

Product brochure entitled: "Cordless Sagittal Saw", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "The Only Cordless Instrument Powerful Enough to be Stryker", by Stryker®, (4 pages). (No Date).

Product brochure entitled: "System 2000 Battery Powered Instruments", by Stryker®, 1993 (18 pages). (No Month).

Product brochure entitled: "System 2000 Battery Powered Instruments", by Stryker® (11 pages). (No Date).

Instruction Manual entitled: "The Hall® Orthair™ System" by Zimmer USA. (12 pages). (NO Date).

Product brochure entitled: "Maxion™ Cordless Powered Instrument System. Assembly, Operation and Maintenance", by 3M HealthCare (6 ges). (No Date).

Hall® Versipower™ Dual Power Orthopaedic Instruments, by Zimmer, 1989, (6 pages). (No Month).

Product Insert entitled "Mark III Electric Tool" by Avery Dennison. (1 page). (No Date).

Operating Instructions entitled, "Mark III Electric Tool", by Avery Dennison. (12 pages). (No Date).